

Salt deformations in Central Paratethys - Transylvanian Basin

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The Transylvanian Basin is considered to be part of Central Paratethys, together with Pannonian Basin. Often they were interpreted to have the same origin. However the opening and subsidence mechanisms during Miocene are still inconsequent and poorly understood.

The large interes in finding out the exact procesess and paint a clear picture on the mechanisms which led to the formation of the basin is due to the high amout of natural resources found in the area. The natural gas reservoirs have been exploited for almost 100 years, and they still haven't reached their entire potential. The major tectonic events produced during the Late Sarmatian and Post-Pannonian were related to the reactivation of the pre-Badenian fault systems.

The salt diapirs in the Transylvanian basin have risen a lot of questions during the years. The presence of salt formartions are also an important issue because the tectonic outlook of the area may be modified by the salt, by either reactivating pre-Badenian fault systems, or the newer fault systems cut through the salt formations (i.e. Rusi Cenade fault). This study focuses on the deformation patterns in the Southern part of the basin, where early Badenian extensional structures can be observed filled with evaporitic deposits, which have been later on involved in halokinematic proceses, resembled in diapiric structures, large folds and thrust faults. Important tectonic events in the Central Paratethys are related to the reactivation of the Early Badenian fault systems during Late Sarmatian times. The deposition of the salt is a major marker in the sedimentologic history of the basin. The salt diapirs form a belt, and in some areas they even reach a height of 3 kilometers. Interpretation of regional seismic profiles, stratigraphic and sedimentologic data have offered an imporvement in picturing the tectonic evolution of the area. What we can be sure of is that the evolution of a major fault which cuts through the entire Southern part of the basin is controlled by the salt movements, which act like a decolemet level, and also by the early Badenian fault systems which act like a ramp.